RF filter design using LTCC and thin film BAW technolog

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Abstract
SAW technology is commonly used to provide RF front-end selectivity in many mobile ph Their small size, high rejection and low insertion loss gives this technology a significant a competing approaches. However, although photolithographic advances continue to be m allowed SAW devices to operate at frequencies beyond several gigahertz, manufacturing slow. Also SAW RF power handling decreases with increasing frequency. In contrast thin wave (BAW) technology may be quite robust at frequencies up to and beyond 10 GHz. T can handle very reasonable power levels without the need for exotic metalization scheme resonators have higher Q and lower temperature coefficients than SAW devices using litl paper we describe the development of an RF filter based on thin film BAW resonators. Al stacked reflector type BAW resonators were used, fabricated on a sapphire substrate an metalization. The effective performance of the BAW resonators was enhanced with integ capacitors implemented within a low temperature, co-fired ceramic (LTCC) module. The l conveniently functions as a hermetic housing for the BAW die through the use of flip-chip vehicle for this demonstration we selected the CDMA transmitter inter-stage filter applica requirements are to provide a 60 MHz pass band response at 1880 MHz and to provide beginning 20 MHz above the pass band. The complete filter form factor is 10 mm×6 mm frequency response achieves the required 3.5 dB maximum insertion loss in the Tx band range of -40C to +85C. Although this application does not require the filter to handle "hig evaluated the lifetime potential for thin film BAW technology using this device by applyinc power at the maximum energy dissipation frequency near the upper pass band edge

Index Terms
Inspec
Controlled Indexing
III-V semiconductors acoustic wave propagation aluminium compounds band interdigital transducers piezoelectric semiconductors radiofrequency filters se thin films surface acoustic wave filters wide band gap semiconductors

Non-controlled Indexing
-40 to 85 C 1 to 3 W 10 GHz 10 mm 1880 MHz 2 mm 6 mm 60 MHz Al design RF front-end selectivity SAW RF power handling high rejection loss i filter application low insertion loss low temperature co-fired ceramic module n energy dissipation frequency sapphire substrate small size stacked reflector resonators thin film BAW technology thin film bulk acoustic wave technology band edge
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References

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